

# **Quarterly SEM Price Report**

**January – April 2013 inclusive**

## **Information Paper**

**21 June 2013**

**SEM-13-040**

## 1. Introduction

Since 1<sup>st</sup> November 2007 the Northern Ireland Authority for Utility Regulation (NIAUR or Utility Regulator) and the Commission for Energy Regulation (CER), together referred to as the Regulatory Authorities or RAs, have jointly regulated the all-Island wholesale electricity market known as the Single Electricity Market (SEM) covering both Northern Ireland and the Republic of Ireland. Further details on the project can be found on the AIP website at [www.allislandproject.org](http://www.allislandproject.org).

The SEM includes a centralised gross pool (or spot) market which, given its mandatory nature for generators (above 10 MW) and suppliers, is fully liquid. In this pool electricity is bought and sold through a market clearing mechanism, whereby generators bid in their Short Run Marginal Cost (SRMC) and receive the System Marginal Price (SMP) for each trading period for their scheduled market quantities, as well as other revenue streams. Suppliers purchasing energy from the pool pay the SMP for each trading period along with other costs.

Fuel and carbon prices, especially the prices of natural gas, are the primary drivers of the SMP. Therefore, and to assist transparency in the market, the RAs publish a regular report showing, among other things, fuel and carbon prices, indicating movements in prices over the preceding two years. This report also includes information on the movement in the SMP over the preceding two years and a forecast to the end of 2013, as well as a comparison with the prices seen in wholesale electricity markets across a number of other European countries.

### **Note**

This report covers the period from 1 January 2013 to 30 April 2013. It was decided to extend the reporting timeframe for fuel and carbon in this report from Q1 2013 to also include April 2013 due to the price movements in gas around March and April.

## 2. Fuel & Carbon Markets

The graphs below show the trends in spot and forward prices for gas, coal, oil and carbon for the period from 1 January 2013 to 30 April 2013. Comparisons are made for the previous two years. Fuel prices and especially day-ahead gas prices are the main driver for wholesale prices in the SEM.

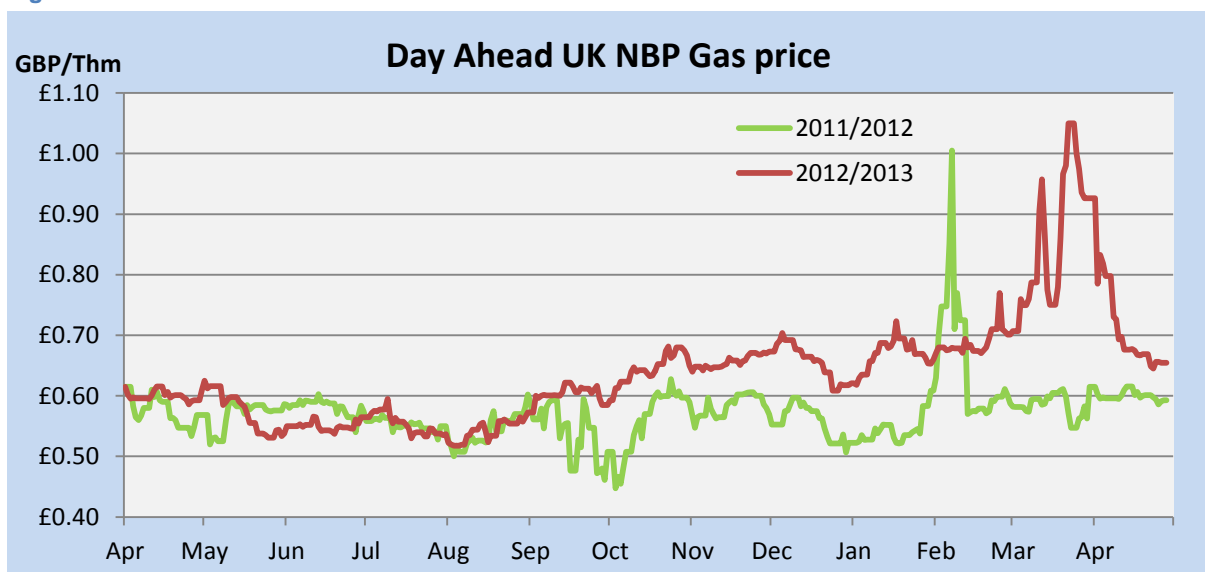
### **Gas Prices - Sterling**

As can be seen from Figure 1 there have been two spikes in gas prices over the course of the past twenty four months. The sharp increase in gas prices in early February 2012 was driven primarily by the cold weather, resulting in UK gas demand outstripping supplies and requiring storage withdrawals. Following this brief spike, gas prices returned to around 60 pence per therm (p/therm) and generally remained just below this up until the final quarter of 2012. Then, as we moved into the winter period, the day-ahead price increased, although the mild weather in late December brought the price down somewhat.

There was another price spike in March and April 2013 driven again by the unseasonal cold weather with higher than usual gas demand. An April NBP contract has not traded at such highs since April 2009<sup>1</sup>. Towards the end of April prices returned to more typical levels for that time of year.

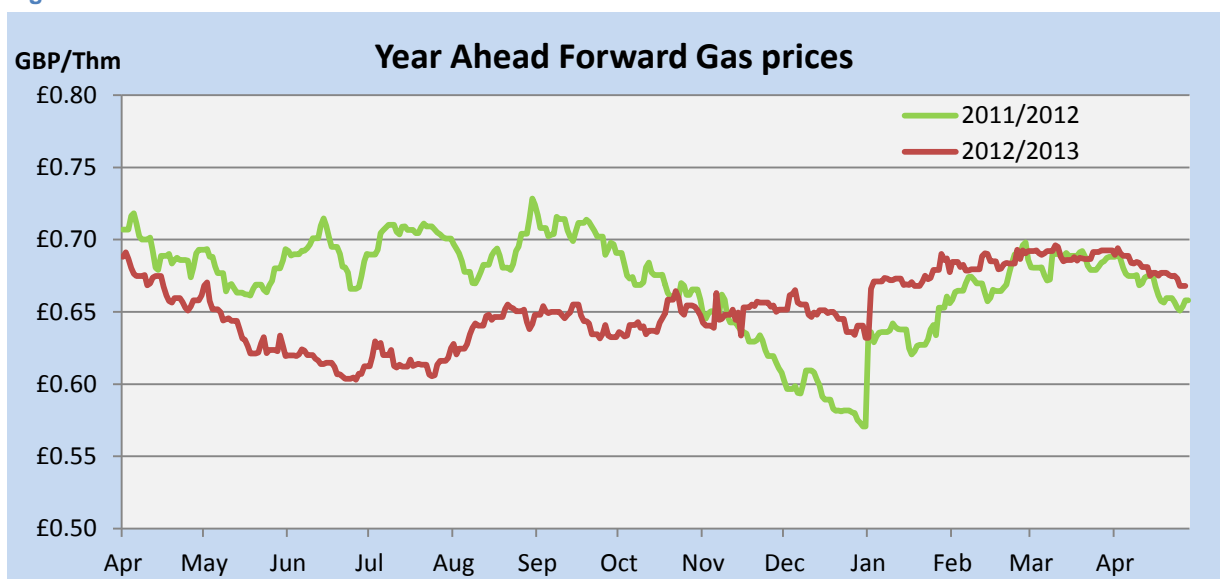
As can be seen from Table 1 overall in Sterling terms the day-ahead gas prices for the year to April 2013 were higher than those experienced in the year to April 2012, with the average daily price having increased by 10%. In contrast to this, year ahead gas prices were lower by almost 3% overall. Please also refer to Figure 2. It can be seen that the year-ahead prices did not show the same spikes as the day-ahead prices.

Figure -1



Source – Reuters

Figure -2



Source – Reuters

<sup>1</sup> <http://www.icis.com/heren/articles/2013/03/13/9649154/natural-gas-prices-fall-but-nbp-still-leads-way-as-april.html>

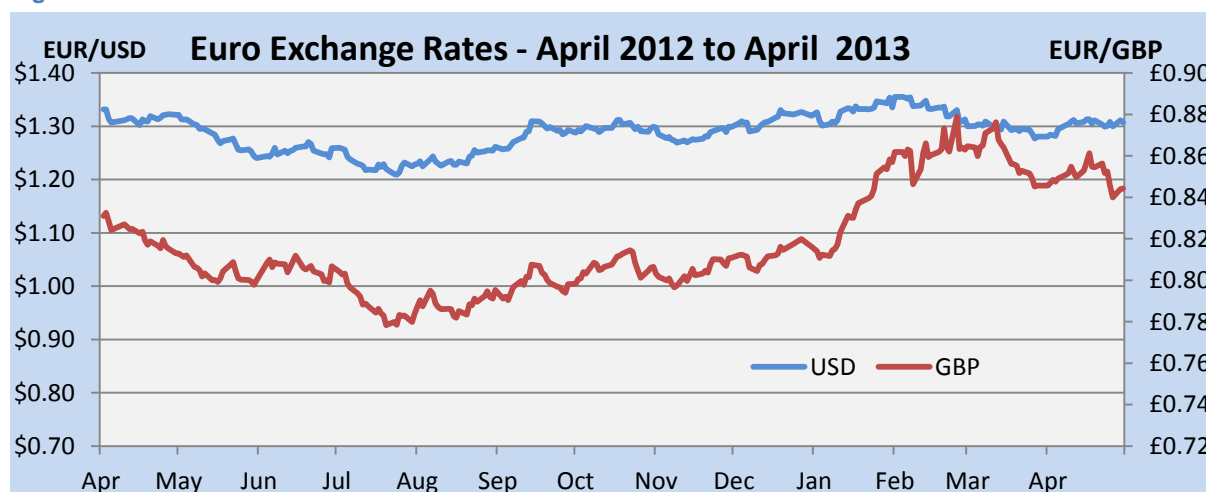
**Table 1: Year on Year Change in UK NBP Gas Prices (April-April each year)**

Average UK NBP Gas price	2011/12	2012/13	Change
Day Ahead Gas Price - GBP/Therm	0.57	0.64	10.41%
Year Ahead Gas Price – GBP/Therm	0.67	0.65	-2.71%

## Gas Prices – Euro

As can be seen from Figure 3 the value of the Euro rose relatively to both the US Dollar and Sterling from mid-2012 following a period of falling in value. However, taking the average daily exchange rate over the period April 2011 to April 2012 as compared with the same period in 2013, Table 2 shows that the Euro weakened almost 7% against the Dollar and 5% against Sterling.

**Figure -3**



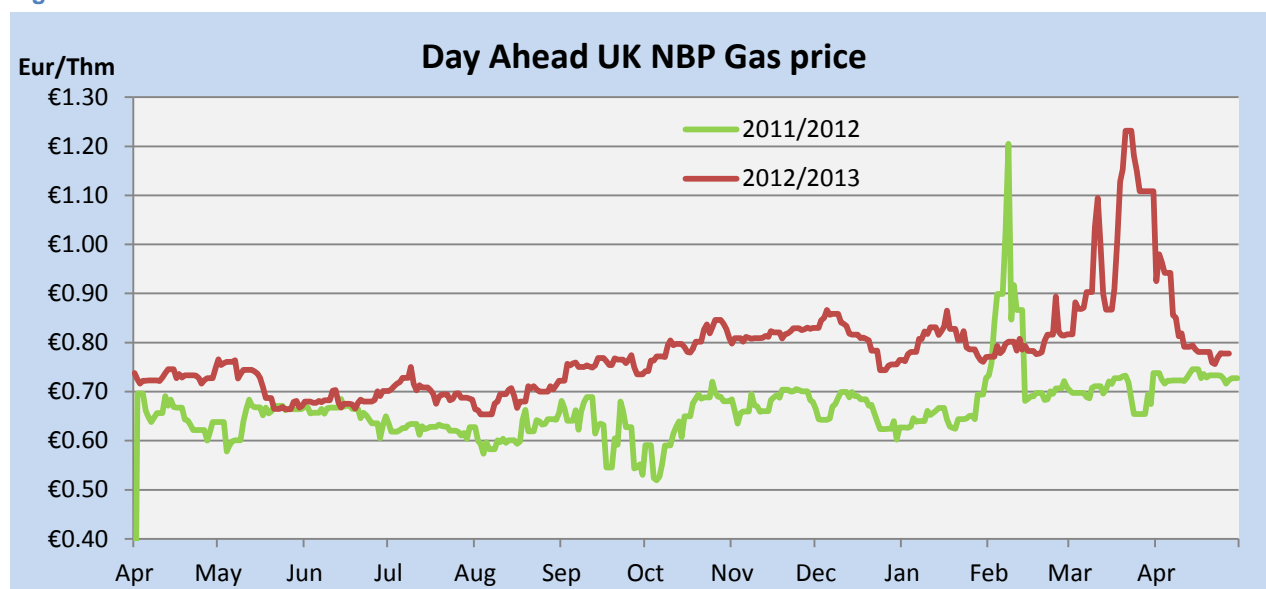
Source - ECB

**Table 2: Year on Year Movement in Exchange Rates**

Average Exchange Rates	2011/2012	2012/2013	Change on Year
EUR/USD Rate (€1 =)	\$1.38	\$1.29	-6.89%
EUR/GBP Rate (€1 =)	£0.86	£0.82	-5.47%

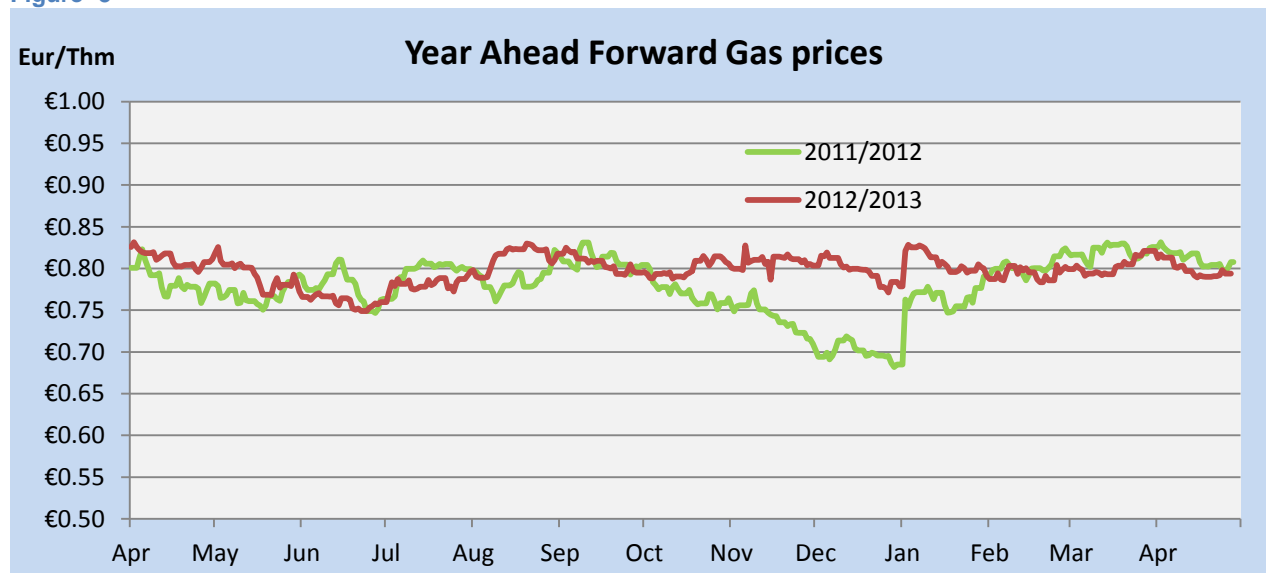
With over 90% of gas used in the SEM imported from Great Britain, the exchange rate has a major impact on the price of gas and consequently the wholesale market price (SMP) in the SEM. Table 1 in Sterling terms shows that the day-ahead gas price increased by 10.41% in 2012/2013 compared to 2011/2012, but in Euros per therm the increase was greater, at 14.48%. This is consistent with the weakening of the Euro against Sterling. Please also refer to Figures 4 and 5 for details.

Figure -4



Source - Reuters

Figure -5



Source - Reuters

Table 3: Year on Year Change in Gas Prices in Euro Terms (April-April each year)

Average UK NBP Gas price	2011/12	2012/13	Change
Day Ahead Gas Price – EUR/Therm	0.67	0.78	14.48%
Year Ahead Gas Price – EUR/Therm	0.78	0.80	2.35%

Source - Reuters

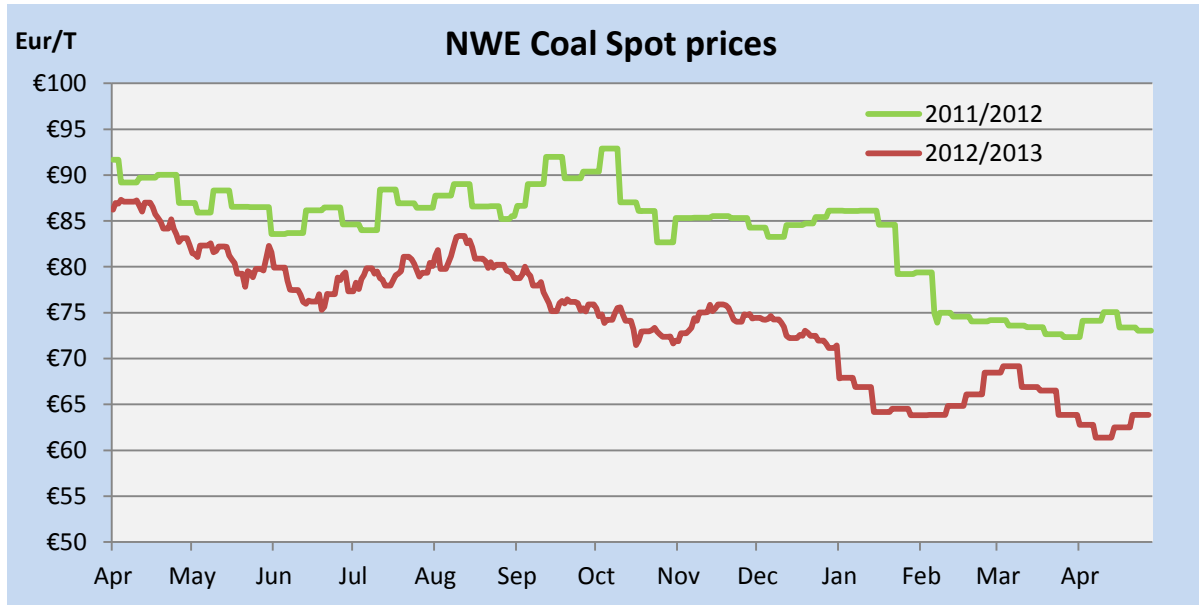
### NWE Coal Prices – Euro

The period covered has seen the price of coal decrease relative to the previous period. There has been a steady decrease in both the spot and the year-ahead price for coal over the course of the period, continuing the trend reported in the previous report as can be seen from Figures 6 and 7. This coincides with the fact that the Euro has recovered relative to the Dollar since mid-2012. As highlighted in Table 4,

spot prices for coal in the period covered are down almost 13% compared to the previous period and year-ahead prices are down 15%.

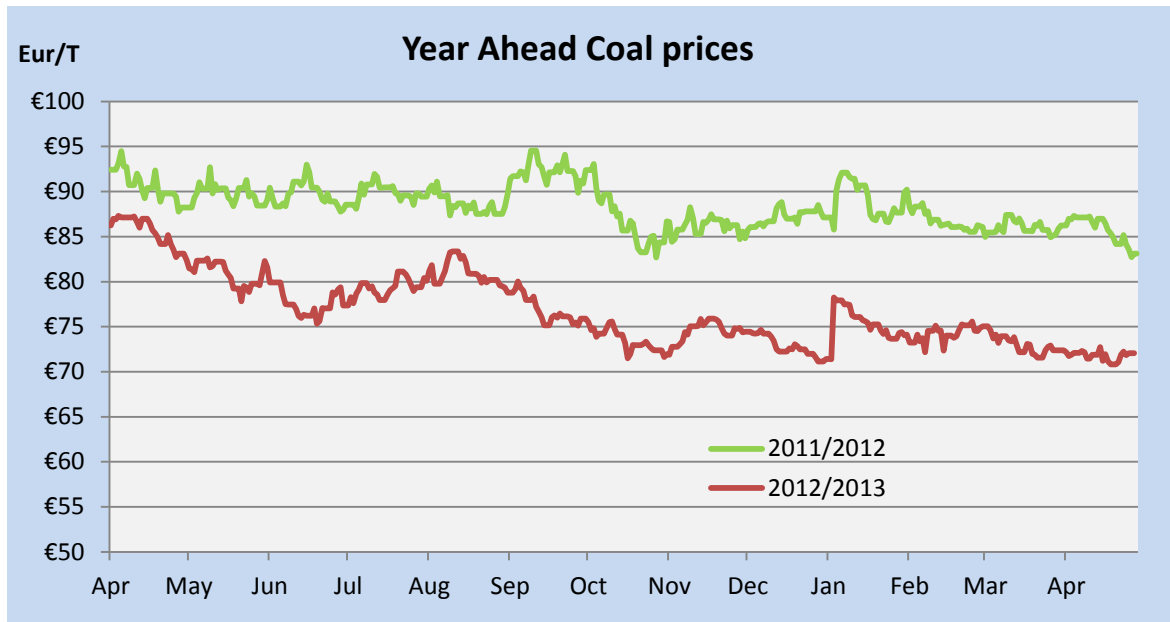
This decrease in prices over the course of the year has helped mitigate the upward pressure on the SMP and has made coal plant more competitive in the SEM.

Figure -6



Source - Reuters

Figure -7



Source - Reuters

Table 4: Year on Year Change in Coal Prices (April-April)

Average UK NBP Gas price	2011/12	2012/13	Change
Coal Spot Prices (EUR/T)	83.75	74.13	-12.97%
Year Ahead Coal Prices (EUR/T)	88.35	76.68	-15.22%

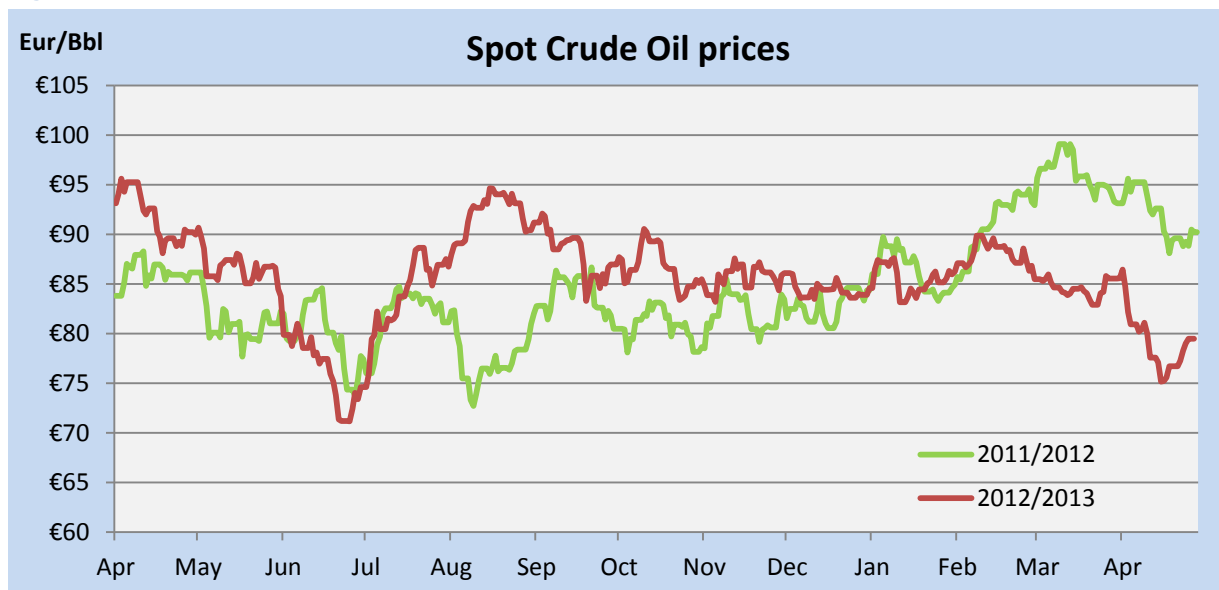
Source - Reuters

## Oil Prices – Euro

Oil represents only a small fraction of the fuel mix in the SEM and consequently has little impact on the wholesale price. However, the movement in oil prices has been included in order to provide a complete picture of trends in fuel prices and also due to the fact that oil prices tend to influence gas prices.

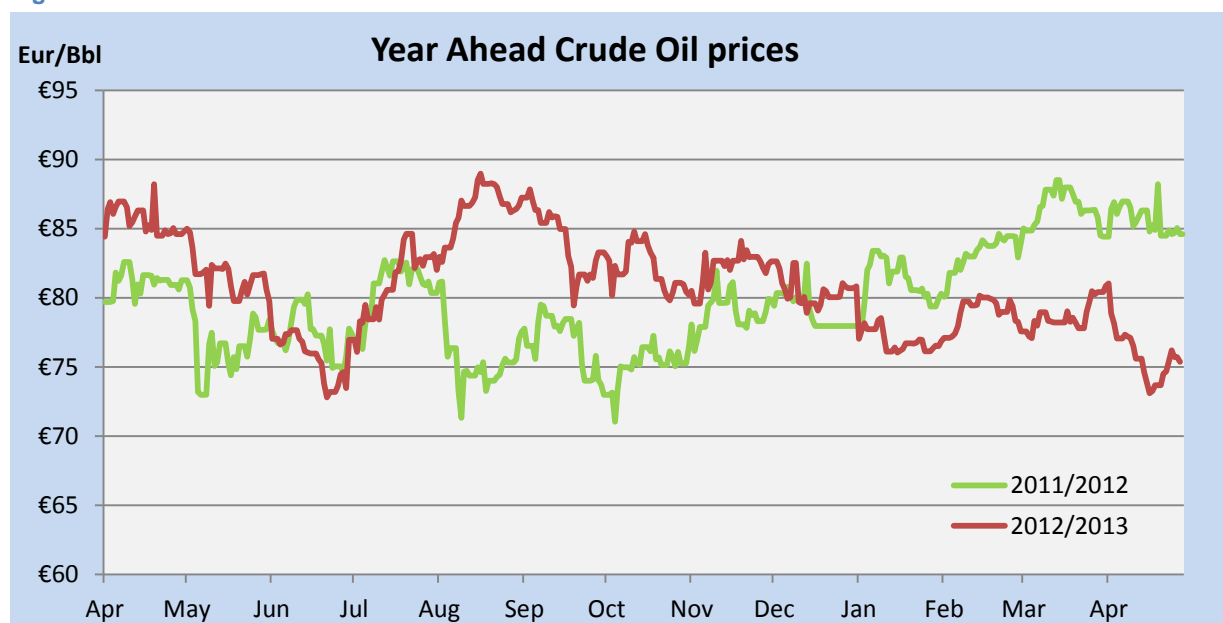
Oil prices have been more volatile than either gas or coal prices over the course of the reporting period. Figures 8 and 9 show that the price remained relatively stable until February 2013 but has seen a significant drop off since then. There was a step decrease in oil prices from February to April 2013. The price is trending at this lower level. This is almost the same trend as compared with the same period in 2012 but with the absolute price much lower than in 2012. As can be seen from Table 5, the average spot price for crude oil for 2012/2013 was just over 1% higher than in the same period in 2011/2012 with the average year ahead price lower by the same amount.

Figure -8



Source - Reuters, Brent Crude Oil

Figure -9



Source - Reuters, Brent Crude Oil

Table 5: Year on Year Change in Oil Prices (April-April)

Average UK NBP Gas price	2011/12	2012/13	Change
Spot Crude Oil Prices (EUR/Bbl)	84.61	85.63	1.20%
Year Ahead Crude Oil Prices (EUR/Bbl)	79.75	80.79	1.28%

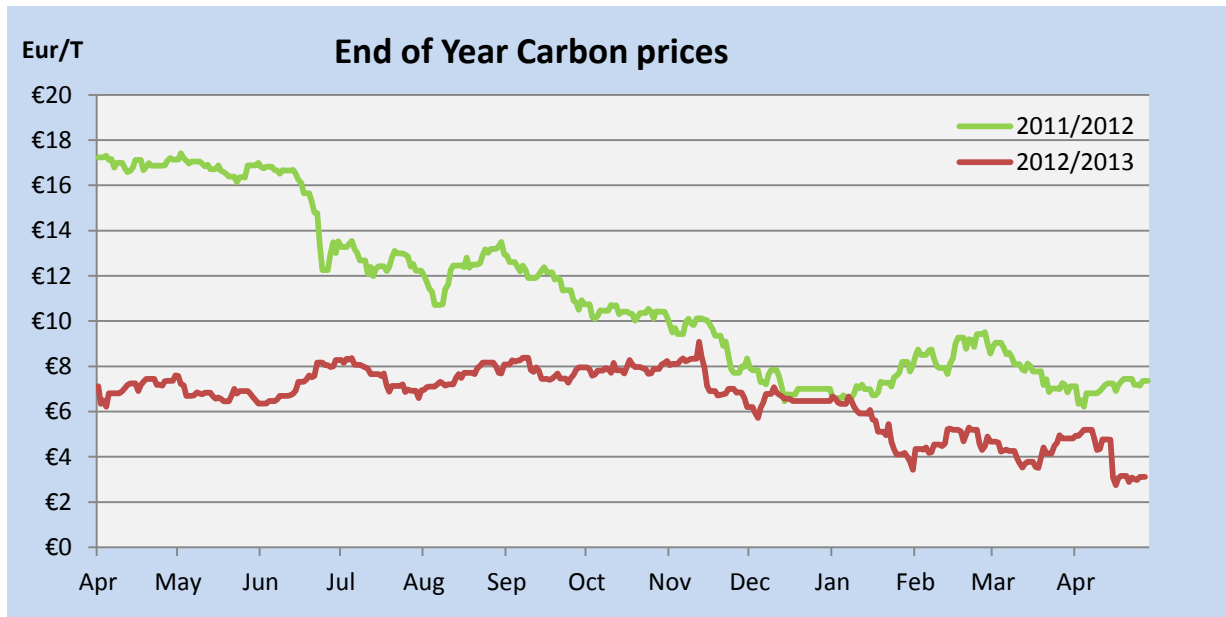
Source - Reuters

## EUA Carbon Prices - Euro

The period from January 2013 saw a significant decrease in the price of carbon in terms of the end of year prices. Both end of year and year ahead prices are considerably lower than the same period in 2011/2012. Taking the daily price for end of year carbon in Table 6 and Figures 10 and 11, the average price is 70% lower than in the previous period with the year ahead price lower by almost the same amount of 68.75%

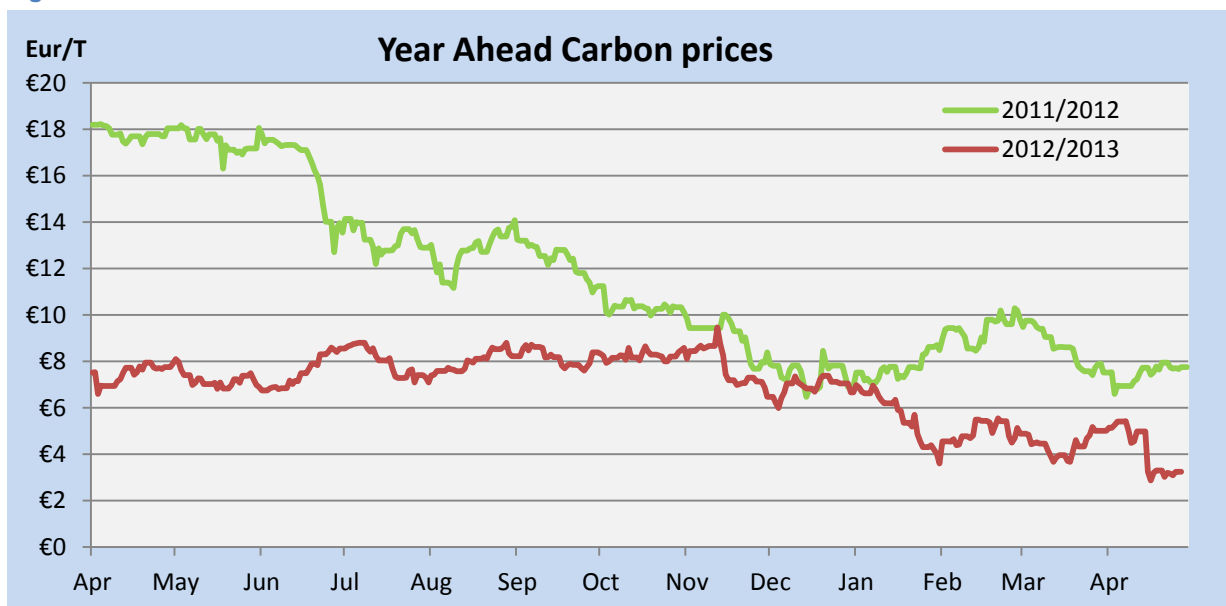


Figure -10



Source – ICE Futures

Figure -11



Source – ICE Futures

Table 6: Year on Year Change in Carbon Prices (April-April)

	2011/12	2011/12	2012/13	Change
End of Year Carbon prices (EUR/T)		11.06	6.51	-69.90%
Year Ahead Carbon prices (EUR/T)		11.55	6.84	-68.75%

Source – Reuters

### 3. Electricity Markets

#### 3.1 SEM Wholesale Market Prices

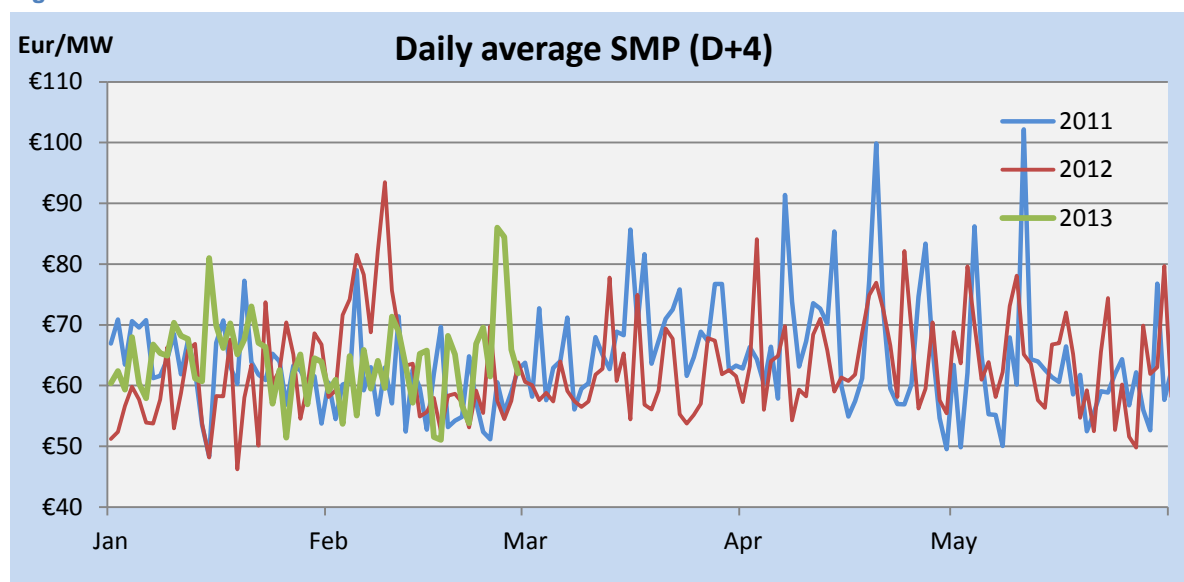
Fuel prices and especially gas prices are the main driver for wholesale prices in the SEM. As a result we can see how fuel prices impact on the SMP in the table and graphs below. Figure 12 shows the movement in the daily average SMP over the course of the period in question, while Figure 13 shows the monthly average outturn SMP, with a forecast<sup>2</sup> monthly price included for the remainder of 2013.

As illustrated in Figure 13 and shown in Table 8 the SMP increased in 2012 and is forecast to increase further in 2013. This forecast is in line with the increase in gas prices over the course of 2012 as well as the increase in year-ahead prices. The increase was tempered by decreases in both coal and carbon prices. The two Figures also illustrate how the SMP is lower over the summer months as demand decreases. The forecast increase in SMP in 2013 reflects the rise in year-ahead gas prices, as illustrated in Figure 5. The actual outturn SMP over the course of the year depends on a number of factors, primarily the movement in fuel prices over the period.

As can be seen from Figures 12 and 13 the SMP has shown a sharp increase from the beginning of the year followed by a sharp decrease (2013 Outturn (Jan-April)), effectively spiking in March. As stated above as gas is such a large part of the generation mix it has a relatively large impact on SMP. Hence it can be concluded that this increase is in part due to the spike seen in the day ahead gas price during this period.

Figure 13 also shows an SMP forecast to the end of 2013. Please note that this is based on April 2013 fuel data.

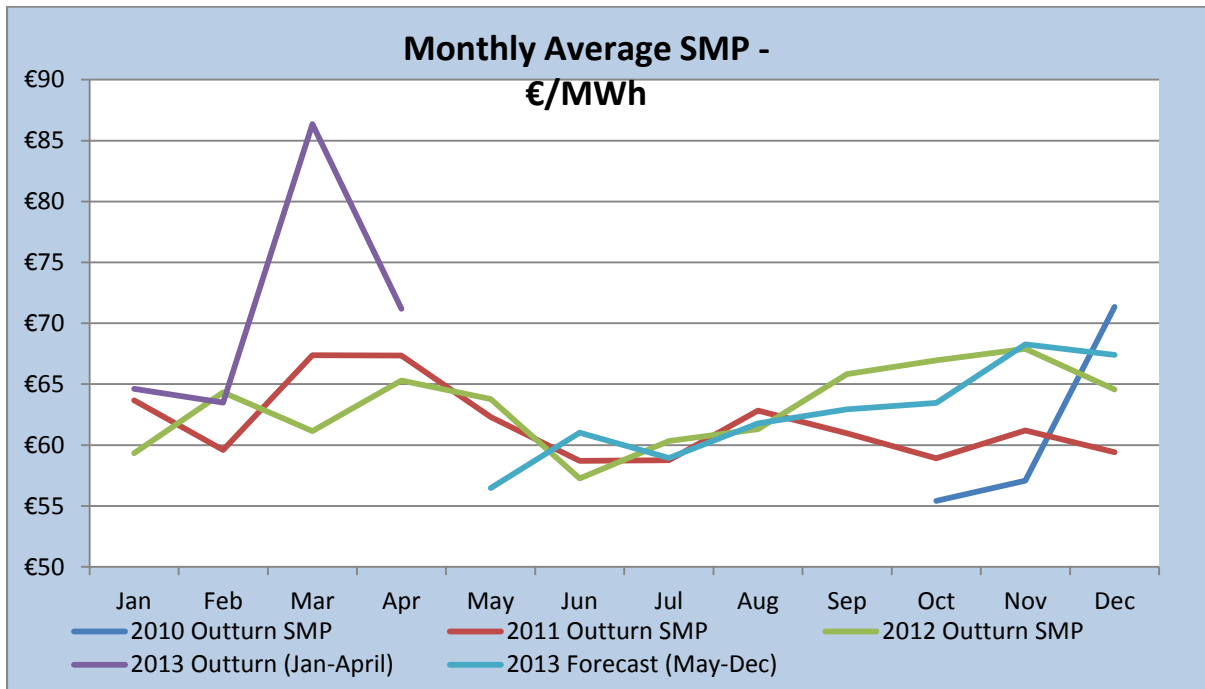
Figure -12



Source - SEMO

<sup>2</sup> The forecast SMP was carried out using the Plexos model as set out in the RA's paper on Directed Contracts Q2 2013 to Q1 2014 ([SEM-12-109](#)) and fuel prices from 30 April 2013.

Figure -13



Source – SEMO & Plexos

Table 8: Year on Year Change in SMP

	€/MWh	Change (Year on Year)
Average SMP - 2011	€ 61.77	
Average SMP - 2012	€ 63.15	2.20%
Average Forecast SMP - 2013 (Actual to end April plus forecast for rest of 2013)	€ 65.29	3.39%

### 3.2 SEM & European Wholesale Market Prices

Figures 14 and 15 below show the wholesale prices that generators across Europe have been paid (per MWh) in 2012 and from January to April 2013 and Table 9 shows the average price in each market for the periods in question. As can be seen from the table and graphs the SEM is at the upper end of the prices across European markets. This is the same as was reported on in the previous report. This is not unexpected given the island's size and reliance on imported fossil fuels. It is also important to note that other markets may not include all energy and capacity costs in the same manner as the SEM. As a result it may not be completely accurate to make direct comparisons between the SEM day-ahead prices and those in other EU markets.

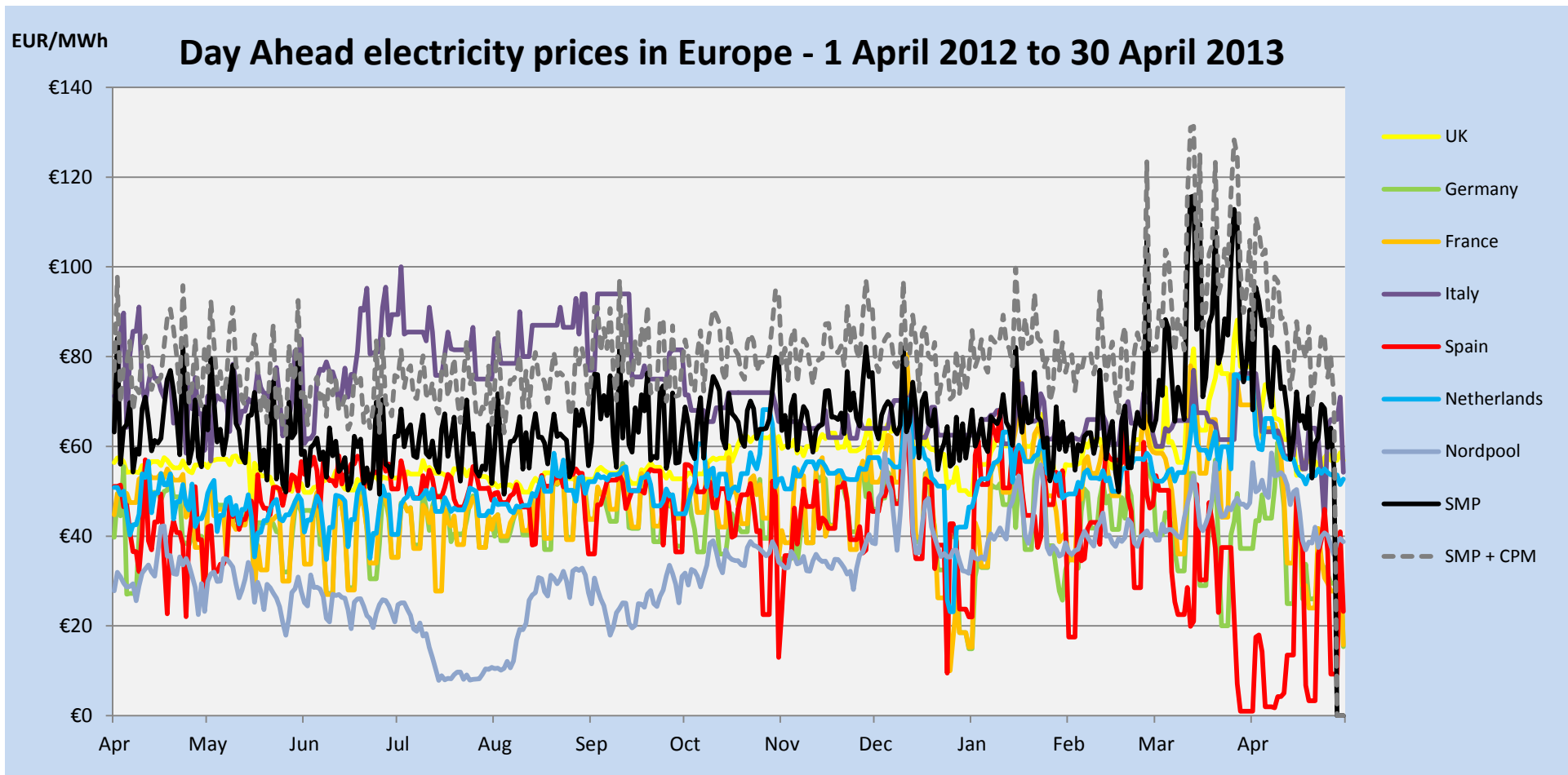
Table 9: European Wholesale Prices

Average Wholesale Price - Price - €/MWh		
Market	2012	2013 (Jan-April)
SEM + CPM	€77.93	€88.14
Italy	€76.84	€64.68
SEM	€63.11	€71.52
UK	€55.25	€62.52
Netherlands	€49.50	€56.94
Spain	€47.79	€35.32
France	€46.33	€51.53
Germany	€45.11	€40.33
Nordpool	€31.20	€43.07

The graphs below show two lines for SEM prices, one including capacity payments and one without.

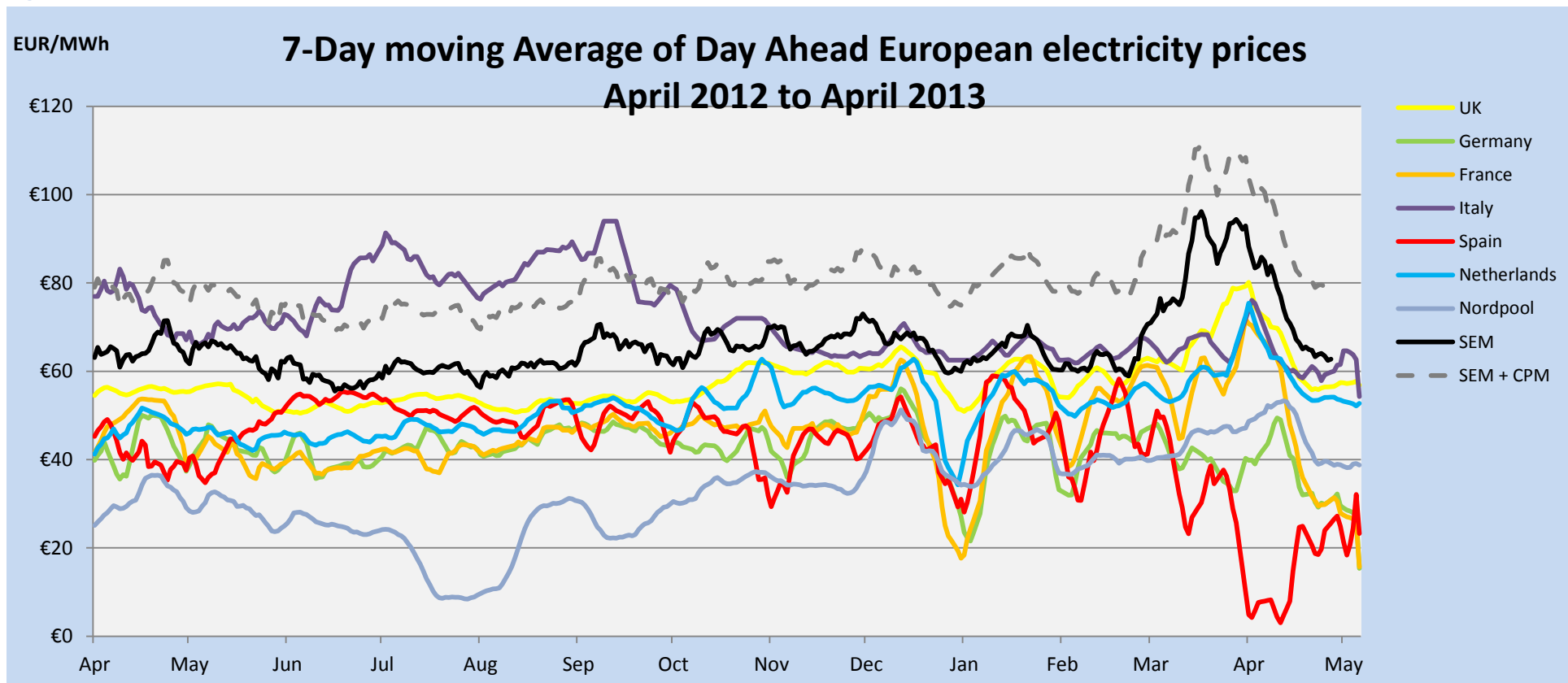
One event to note is the spike in prices seen in March/April, which was primarily due to the cold weather conditions across Europe.

Figure -14



Source – Reuters & SEMO

Figure -15



Source – Reuters & SEMO

## 4. Directed Contracts

In November of 2012 the RAs published an information note<sup>3</sup> on contracting in the SEM from 2007 to 2013. The report provided details on the different contract products offered as well as the volume of contracts sold each year. In addition the report showed the price trends over the past number of years, both in terms of fuels and contracts. This included information on the price and volume of Directed Contracts (DCs) sold.

The contracting report will be published by the RAs on an annual basis in order to improve the level of market data available to all industry stakeholders. However, in April of 2012 the RAs published the decision<sup>4</sup> on the format of DCs for 2012/13 and beyond. The paper set out the decision to move away from holding DC auctions on an annual basis and instead to have rolling quarterly auctions. With the move to quarterly DC auctions, it is appropriate that information on the price and volumes of DCs be provided on a more regular basis than the annual contracting report.

The below tables and graphs, using the same format as the contracting report, provide information on the price and volume of DC auctions. The information includes the latest round of auctions held in March 2013 and each subsequent quarterly price report will include the latest results from DC auctions, in order to provide up to date information to stakeholders.

It is worth noting that the contract volumes for the 2012/13 and 2013/14 contract years show the volume of contracts sold to date and do not represent the full volume of contracts that are likely to be sold for the period. As the DC auctions moved to a system of rolling quarterly auctions, the full volume for each quarter will be sold over a period of time. Table 10 below shows the portion of the expected total DC volumes that have been sold for those years to date.

**Table 10:**

Expected Volumes of DCs Offered to Date					
Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014
100%	100%	100%	75%	50%	25%

<sup>3</sup> Contracting in the SEM 2007-2013 – SEM/12/100

<sup>4</sup> Directed Contracts Implementation for 2012/13 and Beyond – SEM/12/026

Table 11: Directed Contracts Average Price (€/MWh), 2007-2014

DC's average price (€/MWh)												
	Q4			Q1			Q2			Q3		
	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak
2007/08	62.31	75.05	105.51	76.42	89.73	110.77	61.13	70.45			72.22	
2008/09	94.91	107.30	161.89	100.00	112.94	162.51	84.79	94.28		85.50	96.55	
2009/10	55.31	63.25	89.07	58.10	65.03	88.44	56.65	64.41		56.00	65.09	
2010/11	55.19	62.49	85.65	58.14	64.66	79.12	53.60	60.12		57.53	66.18	
2011/12	72.13	80.28	108.28	73.15	80.26		68.33	74.39			74.49	
2012/13	64.89	69.70	95.17	69.29	74.53	103.63	61.66	64.90		62.60	67.07	
2013/14	69.15	76.06	110.03	71.92	79.20	112.48	59.22	66.33				

\* Contract year runs from 1<sup>st</sup> October to 30<sup>th</sup> September. E.g. 2007/08 Contract year = Q4 2007 - Q3 2008

Figure 16: Directed Contracts Average Price (€/MWh)

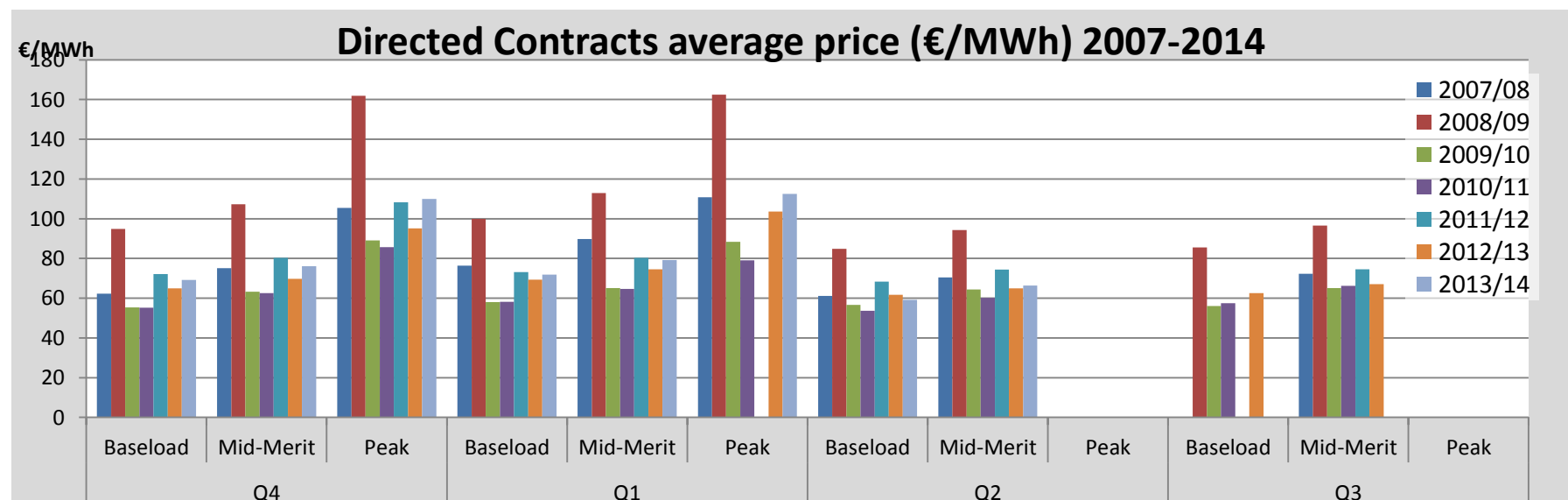




Table 12: Directed Contracts Volumes (GWh), 2007-2014

DC's volume (GWh)												
	Q4			Q1			Q2			Q3		
	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak
2007/08	351.95	121.66	90.29	586.79	194.20	76.09	156.59	603.64	-	-	767.05	-
2008/09	537.29	186.24	169.27	604.80	48.64	176.03	517.60	294.15	-	289.08	621.16	-
2009/10	492.16	311.51	73.64	557.02	234.63	61.92	524.38	452.23	-	581.15	135.43	-
2010/11		259.28	112.60		209.30	72.72		423.30			291.01	
2011/12	461.68	143.10	13.25	336.17	101.62	-	259.89	130.49	-	-	213.90	-
2012/13	545.62	-	60.72	643.37	-	-	788.42	19.08	-	622.65	80.36	-
2013/14	669.32	79.99	22.45	330.33	141.79	36.00	198.74	20.35	-	-	-	-

Figure 17: DC Volumes (GWh)

## Directed Contract's volumes (2007-2014)

